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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,014	01/16/2004	Makoto Suzuki	117499	6249

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EXAMINER

NGUYEN, TU MINH

ART UNIT PAPER NUMBER

3748

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/758,014

Applicant(s)

SUZUKI ET AL.

Examiner

Tu M. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 3-5 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6,8,9,11-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 10 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>011604,020305</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restriction

1. Applicant's election without traverse of the species of Figure 6 in an Applicant's Response to an Election/Restriction Requirement submitted on February 1, 2006 is acknowledged. Claims 1, 2, 6, and 8-20 are readable thereon and will be examined in their full merit. Claims 3-5 and 7 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 8, 9, 11, 14-16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinugasa et al. (U.S. Patent 5,964,088).

Re claims 1 and 14, as shown in Figures 1-3, Kinugasa et al. disclose an exhaust emission control system for a vehicle including a primary engine (1) and a secondary engine (20) having

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a displacement smaller than that of the primary engine (primary engine (1) is a multi-cylinder engine while secondary engine (20) is a single cylinder engine), the exhaust emission control system comprising:

- an exhaust passage (13) having a junction portion at which exhaust gas discharged from the primary engine (1) and exhaust gas discharged from the secondary engine (20) join together; and

- an exhaust emission purifying device (14) that purifies the exhaust gas joined at the junction portion in the exhaust passage, the exhaust emission purifying device (14) being warmed under heat of exhaust gas discharged from the primary engine.

Re claims 2 and 15, in the system of Kinugasa et al., the secondary engine (20) is operated to drive an accessory (31) of the vehicle (see lines 26-31 of column 6).

Re claim 8, the system of Kinugasa et al. further comprises:

- a fifth air-fuel ratio detection unit (50) provided between the primary engine and the junction portion for detecting an air-fuel ratio of exhaust gas;

- a sixth air-fuel ratio detection unit (61) provided between the junction portion and the exhaust emission purifying device for detecting an air-fuel ratio of exhaust gas; and

- a controller (40) that controls an air-fuel ratio of air/fuel mixture admitted into the primary engine based on the air-fuel ratio detected by the fifth air-fuel ratio detection unit, and controls an air-fuel ratio of air/fuel mixture admitted into the secondary engine based on the air-fuel ratio detected by the sixth air-fuel ratio detection unit.

Re claims 9 and 16, in the system according of Kinugasa et al., as shown in Figure 7, an activated state (ammonia storage state) of the exhaust emission purifying device (14) is

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determined; and when it is determined that the exhaust emission purifying device is not in the activated state, the secondary engine is started (when an ammonia storage state of the device (14) is at a lower threshold (point b), the secondary engine is run with a fuel rich air-fuel ratio).

Re claims 11 and 18, in the system according of Kinugasa et al., as shown in Figure 7, the exhaust emission purifying device (14) comprises an NOx absorbing type catalyst (ammonia absorbing catalyst (14a)); and an air-fuel ratio of air/fuel mixture admitted into the secondary engine (20) is controlled into a rich state with respect to a theoretical air-fuel ratio when quantity of NOx absorbed in the NOx absorbing type catalyst becomes equal to a predetermined value (when an ammonia storage state of the device (14) is equal to LT(NH₃) (point b), the secondary engine is switched to run with a fuel rich air-fuel ratio).

4. Claims 1, 2, 6, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Fuwa et al. (U.S. Patent 6,345,496).

Re claims 1 and 14, as shown in Figure 42, Fuwa et al. disclose an exhaust emission control system for a vehicle including a primary engine (1) and a secondary engine (120a) having a displacement smaller than that of the primary engine (primary engine (1) is a multi-cylinder engine while secondary engine (120a) is a single cylinder engine), the exhaust emission control system comprising:

- an exhaust passage (129) having a junction portion at which exhaust gas discharged from the primary engine (1) and exhaust gas discharged from the secondary engine (120a) join together; and

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- an exhaust emission purifying device (8, 10) that purifies the exhaust gas joined at the junction portion in the exhaust passage, the exhaust emission purifying device (8, 10) being warmed under heat of exhaust gas discharged from the primary engine.

Re claims 2 and 15, in the system of Fuwa et al., the secondary engine (120a) is operated to drive an accessory (132) of the vehicle (see lines 1-6 of column 32).

Re claim 6, the system of Fuwa et al. further comprises:

- a first air-fuel ratio detection unit (29c) provided between the primary engine and the junction portion for detecting an air-fuel ratio of exhaust gas;

- a second air-fuel ratio detection unit (29b) provided downstream of the exhaust emission purifying device (8) for detecting an air-fuel ratio of the exhaust gas; and

- a controller (20) that controls an air-fuel ratio of air/fuel mixture each admitted into the primary engine and the secondary engine based on the air-fuel ratio detected by the first air-fuel ratio detection unit and the air-fuel ratio detected by the second air-fuel ratio detection unit, respectively.

5. Claims 1, 2, 14, and 15 are further rejected under 35 U.S.C. 102(b) as being anticipated by Diefenthaler, Jr. (U.S. Patent 4,531,379).

Re claims 1 and 14, as shown in Figure 1, Diefenthaler, Jr. discloses an exhaust emission control system for a vehicle including a primary engine (1) and a secondary engine (83) having a displacement smaller than that of the primary engine (primary engine (1) is larger than secondary engine (83)), the exhaust emission control system comprising:

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- an exhaust passage (75) having a junction portion at which exhaust gas discharged from the primary engine (1) and exhaust gas discharged from the secondary engine (83) join together; and

- an exhaust emission purifying device (77) that purifies the exhaust gas joined at the junction portion in the exhaust passage, the exhaust emission purifying device (77) being warmed under heat of exhaust gas discharged from the primary engine.

Re claims 2 and 15, in the system of Diefenthaler, Jr., the secondary engine (83) is operated to drive an accessory of the vehicle (see lines 30-35 of column 6).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 12-13 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinugasa et al. as applied to claims 1 and 14, respectively, above, in view of official notice.

Re claims 12 and 19, it is obvious that the system of Kinugasa et al. further comprises valve position detection units that detect positions of the intake and exhaust valve positions of the primary engine, and the positions of the intake and exhaust valve positions of the secondary engine.

Kinugasa et al., however, fail to specifically disclose that the system further comprises the operations for stopping a drive of each of the primary engine and secondary engine are inhibited when it is determined that the intake valves and the exhaust valves of the primary engine and secondary engine are opened based on output values detected by the valve position detection units.

It is well known to those with ordinary skill in the art that a typical engine is equipped with means to inhibit the stopping of the engine when it is determined that the intake valves and the exhaust valves of engine are opened based on output values detected by the valve position detection units. Therefore, such disclosure by Kinugasa et al. is notoriously well known in the art so as to be proper for official notice.

Re claims 13 and 20, it is also obvious that the system of Kinugasa et al. further comprises airflow meters to detect flow rates of intake air admitted into the primary engine and the secondary engine.

Kinugasa et al., however, fail to specifically disclose that a quantity of fuel injected into the primary engine or the secondary engine is controlled in accordance with a flow rate of intake air into the engine.

It is well known to those with ordinary skill in the art that in an engine such as the one in Kinugasa et al., an air-fuel ratio of a mixture into the engine is closely controlled based on at least an operation state of the engine. Therefore, to keep a desired air-fuel ratio, a quantity of fuel injected into the primary engine or the secondary engine in Kinugasa et al. is controlled in accordance with a flow rate of intake air into the engine. Therefore, such disclosure by Kinugasa et al. is notoriously well known in the art so as to be proper for official notice.

Allowable Subject Matter

8. Claims 10 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior Art

9. The IDS (PTO-1449) filed on January 16, 2004 and February 3, 2005 have been considered. An initialized copy of each is attached hereto.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents: Greer (U.S. Patent 4,682,649), Fujikawa et al. (U.S. Patent 4,935,689), Brown (U.S. Patent 5,177,978), Kanesaka (U.S. Patent 5,456,240), and Willis (U.S. Patent 5,528,901) further disclose a state of the art.

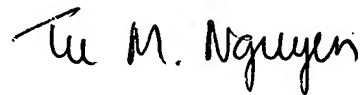
Communication

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink that reads "Tu M. Nguyen". The signature is written in a cursive, flowing style.

TMN

Tu M. Nguyen

March 4, 2006

Primary Examiner

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